

CLAIMS

We claim:

1. A method of specifying speed effects for playing a video clip, the method comprising:

- a) defining a set of speed effects for the video clip;
- b) displaying in real-time a presentation of the video clip that accounts for the

set of speed effects defined for the video clip.

2. The method of claim 1, wherein the set of speed effects includes only one speed effect.

3. The method of claim 1, wherein the set of speed effects includes only a plurality of speed effects that specify a plurality of playback speeds for a plurality of intervals.

4. The method of claim 1 further comprising:

receiving user input regarding speed effects;

wherein defining the speed effects comprises converting the user input into a set of speed effect definitions.

5. The method of claim 4, wherein receiving user input comprises:

- a) providing a graph that represents the playback speed of the video clip;
- b) allowing the user to modify the graph.

6. The method of claim 5, wherein allowing the user to modify the graph comprises allowing the user to select a portion of the graph that appears at a first location within a window containing the graph and to move the selected portion to a second location within the window.

7. The method of claim 1, wherein said displaying comprises displaying the video presentation without rendering the presentation to a data storage.

8. The method of claim 7 further comprising:
- after specifying the speed effects for the video clip, rendering the video clip to a data storage.
9. The method of claim 1, wherein the video clip has a plurality of frames, wherein displaying comprises:
- a) selecting a first frame for display at a first playback time;
 - b) displaying the first frame for display at the first playback time;
 - c) selecting a second frame for display at a second playback time;
 - d) displaying the second frame for display at the second playback time.
10. The method of claim 1, wherein the video clip has a plurality of frames, wherein displaying comprises:
- a) selecting a first frame for display for a first playback duration based on the defined set of speed effects;
 - b) displaying the first frame during the first playback duration;
 - c) selecting a second frame for a second playback duration based on the defined set of speed effects;
 - d) displaying the second frame during the second playback duration.
11. The method of claim 10 further comprising:
- a) before displaying the first frame, decompressing the first frame;
 - b) before displaying the second frame, decompressing the second frame.
12. The method of claim 1, wherein the video clip is a composite of a plurality of video clips.
13. The method of claim 12, wherein the video clip includes at least one audio track.

14. A computer readable medium that stores a computer program for specifying speed effects for playing a video clip, the computer program comprising sets of instructions for:

- a) defining a set of speed effects for the video clip;
- b) displaying in real-time a presentation of the video clip that accounts for the set of speed effects defined for the video clip.

15. The computer readable medium of claim 14, wherein the computer program further comprises a set of instructions for receiving user input regarding speed effects; wherein the set of instructions for defining the speed effects comprises a set of instructions for converting the user input into a set of speed effect definitions.

16. The computer readable medium of claim 15, wherein the set of instructions for receiving user input comprises sets of instructions for:

- a) providing a graph that represents the playback speed of the video clip;
- b) allowing the user to modify the graph.

17. The computer readable medium of claim 16, wherein the set of instructions for allowing the user to modify the graph comprises a set of instructions for allowing the user to select a portion of the graph that appears at a first location within a window containing the graph and to move the selected portion to a second location within the window.

18. The computer readable medium of claim 14, wherein the set of instructions for displaying comprises a set of instructions for displaying the video presentation without rendering the presentation to a data storage.

19. The computer readable medium of claim 14, wherein the video clip has a plurality of frames, wherein the set of instructions for displaying comprises sets of instructions for:

- a) selecting a first frame for display at a first playback time;

- b) displaying the first frame for display at the first playback time;
- c) selecting a second frame for display at a second playback time;
- d) displaying the second frame for display at the second playback time.

20. A graphical user interface ("GUI") method for specifying speed effects for a video presentation, the method comprising:

- a) as part of the GUI, providing a GUI graph of the playback speed of the video presentation,
- b) allowing a user to modify the graph by selecting a portion of the graph and performing a GUI drag operation.

21. The method of claim 20 further comprising providing a set of GUI operations for selecting portions of the graph and performing drag operations.

22. The method of claim 20, wherein the graph is defined along at least two axes, wherein one axis represents time during a playback and the other axis represents time within the video presentation.

23. The method of claim 22, wherein the selected portion of the graph is a selected GUI item called a keyframe.

24. The method of claim 23, wherein at any time, the keyframe has a value along the playback-time axis and a value along the content-time axis, wherein when the keyframe is selected, the keyframe has a first content-time value, the method further comprising:

when the keyframe is selected, displaying a frame that appears in the video presentation at the first content-time value.

25. The method of claim 24 further comprising:

wherein when the content-time value of the keyframe changes during a

drag operation, displaying the frame, in the video presentation, that corresponds to the content-time value of the keyframe.

26. The method of claim 25 further comprising:

displaying a graphical representation of the video presentation when the keyframe is selected,

wherein performing the drag operation comprises moving the graphical representation along the playback-time axis when the drag operation is along the playback-time axis.

27. The method of claim 26, wherein performing the drag operation further comprises moving the keyframe along the content-time axis when the drag operation is along the playback-time axis.

28. The method of claim 25, wherein performing the drag operation comprises moving the keyframe along the playback-time axis when (1) the drag operation is along the playback-time axis and (2) the user is pressing a particular keyboard key.

29. The method of claim 25, wherein performing the drag operation comprises moving the keyframe along the content-time axis when (1) the drag operation is along the playback-time axis and (2) the user is not pressing the particular key on the keyboard.

30. The method of claim 25, wherein performing the drag operation comprises moving the keyframe along the playback-time axis when the drag operation is along the playback-time axis.

31. The method of claim 25, wherein performing the drag operation further comprises moving the keyframe along the content-time axis when the drag operation is along the content-time axis.

32. The method of claim 25 further comprising:
- displaying a graphical representation of the video presentation when the keyframe is selected,
 - wherein performing the drag operation comprises
 - a) moving the keyframe along the content-time axis when the drag operation is along the content-time axis.
 - b) moving the graphical representation along the playback-time axis when the drag operation is along the playback-time axis.